

REMARKS

This Amendment is submitted in response to the Office Action dated May 25, 2004. In the Office Action, the Patent Office rejected Claims 17-22 under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. Claims 1-10 and 17-22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In addition, the Patent Office rejected Claim 1 under 35 U.S.C. §102(b) as being anticipated by *Fox* (U.S. Patent No. 5,705,742). Claims 2, 3 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Smietana* (U.S. Patent No. 5,231,959); Claims 4 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Lowi, Jr.* (U.S. Patent No. 5,799,629); Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Lowi, Jr.* and further in view of *Brunet et al.* (U.S. Patent No. 6,170,573); Claims 5 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.*; Claims 11-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Algers* (U.S. Patent No. 6,058,776); and Claims 15 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Algers* in view of *Fox* (U.S. Patent No. 5,799,629).

By the present Amendment, Applicant amended Claims 1, 3, 9 and

17. Applicant asserts that the amendments to the claims and the remarks that follow overcome the rejections made by the Patent Office and place the application in condition for allowance. Notice to that effect is requested.

In the Office Action, the Patent Office rejected Claims 17-22 under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. In response, Applicant amended Claim 17 to define a light source attached at a first wall of a machine element. A sensor is also attached at the first wall. Applicant asserts that support for the placement of the light source and the sensor at the first wall is provided in the specification on page 6, lines 4-16. Accordingly, the rejection of Claims 17-22 under 35 U.S.C. §112, first paragraph, has been overcome and should be withdrawn. Notice to that effect is requested.

Claims 1-10 and 17-22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In response, Applicant amended Claim 1 to define a light source on the first wall of the machine element wherein the light source emits a light into the interior of the machine element. Applicant asserts that the amendment to Claim 1 provides proper antecedent basis for the light referenced in Claim 10. Further, Applicant amended Claim 9 to define a first wall and a second wall of the machine element as being parallel. Applicant

amended Claim 17 to define a head element within a machine element wherein the head element moves towards the first wall while simultaneously moving away from the second wall. Claim 17 was also amended to define a method step for measuring intensity of emitted light which is absorbed within the machine element wherein the light is detected by a sensor. Applicant asserts that the amendment to Claim 17 provides proper antecedent basis for the term "light". Moreover, Applicant asserts that the amendments to Claims 1, 9 and 17 point out and distinctly claim the subject matter which Applicant regards as the invention. Accordingly, the rejection under 35 U.S.C. §112, second paragraph, has been overcome and should be withdrawn.

In the Office Action, the Patent Office rejected Claim 1 under 35 U.S.C. §102(b) as being anticipated by *Fox et al.* (U.S. Patent No. 5,705,742). This rejection is traversed in view of the amendment to Claim 1 and for the reasons that follow.

Independent Claim 1, as amended, defines an apparatus for measuring displacement. The apparatus has a machine element which has a light source on the first wall of the machine element. The light source transmits light into the interior of the machine element. A sensor is positioned to detect intensity of light which is absorbed by a light-absorbing coating on an interior surface of the machine element.

On the contrary, *Fox et al.* merely disclose an apparatus which

has a laser positioned at a first wall. The laser emits a light toward a valve in the form of a beam. The beam is reflected towards a sensor to determine a position of a machine element. However, *Fox et al.* do not disclose use of a light-absorbing coating on an interior surface of the machine element. Moreover, *Fox et al.* do not disclose absorption of emitted light by the coating. Therefore, *Fox et al.* do not disclose each and every element of independent Claim 1.

With respect to the rejection of Claim 1 under 35 U.S.C. §102(b), anticipation requires that a single reference discloses each and every element of Applicant's claimed invention. *Akzo N.V. v. U.S. International Trade Commission*, 808 F.2d 1471, 1479, 1 USPQ 2d. 1241, 1245 (Fed. Cir. 1986). Moreover, anticipation is not shown even if the differences between the claims and the reference are "insubstantial", and one skilled in the art could supply the missing elements. *Structure Rubber Products Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 USPQ 1264, 1270 (Fed. Cir. 1984).

Since *Fox et al.* do not disclose the features defined in amended Claim 1, the rejection of Claim 1 under 35 U.S.C. §102(b) has been overcome and should be withdrawn. Notice to that effect is requested.

In the Office Action, Claims 2, 3 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Smietana* (U.S. Patent No. 5,231,959); Claims 4 and 6 were rejected

under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Lowi, Jr.* (U.S. Patent No. 5,799,629); Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* in view of *Lowi, Jr.* and further in view of *Brunet et al.* (U.S. Patent No. 6,170,573); and Claims 5 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Fox et al.* These rejections are traversed in view of the amendment to Claim 1 and for the reasons that follow.

However, none of *Fox et al.*, *Smietana*, *Lowi, Jr.*, or *Brunet et al.*, taken singly or in combination, teach or suggest the elements of independent Claim 1, from which Claims 2-8 and 10 depend. Namely, none of the references, taken singly or in combination, teach an apparatus for measuring displacement having a machine element having a body defining an interior and having a length defined between a first end and a second end wherein an interior surface of the machine element has a light-absorbing coating. A first wall is positioned at the first end and a second wall is positioned at the second end substantially enclosing the interior. A shaft element is provided and is movable within the machine element. A head element is attached to the shaft element. A light source is positioned on the first wall of the machine element wherein the light source emits a light into the machine element. A sensor is positioned to detect intensity of light absorbed by the coating on the interior surface of the machine element wherein the

intensity of light corresponds to a position of the head element within the machine element at any point between the first end and the second end.

Fox et al. do not teach or suggest a light-absorbing coating on an interior surface of a machine element wherein the coating absorbs light emitted into the machine element.

Smietana merely teach a coating on a shaft element, head element and interior wall of a machine element to avoid "galling or adhesive contact." *Smietana* does not teach or suggest use of a light source and a sensor within a machine element in combination with a light-absorbing coating which absorbs light emitted into a machine element to determine a position of a machine element. Accordingly, one of ordinary skill in the art at the time of Applicant's invention would not have been motivated to combine the teachings of *Fox et al.* with *Smietana* to achieve Applicant's invention as defined in Claim 1.

Lowi, Jr. do not teach or suggest measuring displacement of a machine component. Therefore, one of ordinary skill in the art at the time of Applicant's invention would not have been motivated to combine the teachings of *Fox et al.* with those of *Lowi, Jr.* to achieve the invention as defined in Claim 1.

Brunet et al. merely teach a wire brush for cleaning a machine element. *Brunet et al.* do not teach or suggest measuring displacement of a machine component. Accordingly, one of ordinary

skill in the art at the time of Applicant's invention would not have been motivated to combine the teachings of *Brunet et al.* with *Fox et al.* and *Lowi, Jr.* to achieve the invention as defined in Claim 1.

Therefore, Applicant further asserts that one of ordinary skill in the art at the time of Applicant's invention would never have been motivated to combine these references in the manner suggested by the Patent Office in formulating the rejections under 35 U.S.C. §103(a).

In the Office Action, Claims 11-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Algers* (U.S. Patent No. 6,058,776); and Claims 15 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Algers* in view of *Fox* (U.S. Patent No. 5,799,629). These rejections are traversed for the reasons that follow.

Independent Claim 11 defines an apparatus for cleaning a machine component. The apparatus has a machine element having a body defining an interior wherein the body has a length defined between a first end and a second end. The first end has a wall having an opening. The first wall has a surface which is exterior to the machine element. A first brush is positioned on the surface of the wall wherein the first brush is exterior to the machine element and contacts a shaft element.

Applicant asserts that none of the references, taken singly or

in combination teach all of the elements of independent Claim 11, from which Claims 12-16 depend.

Algers, as agreed to by the Patent Office, merely teaches placement of a brush on an interior surface of a machine element. In column 2, lines 34-37, *Algers* teaches that:

"When metering is not taking place then the piston is kept in a retracted position so that the tip of it is in the level of the tube wall and the tube gets a smooth surface without protruding objects or pits."

The Patent Office asserts that it would have been obvious to place the brush exterior to the machine element. However, placement of the brush exterior to the machine element would provide a protruding object to the surface of the machine element. Accordingly, *Algers* teaches away from placement of a brush exterior to the machine element.

Fox et al. merely teach measuring displacement of a machine element. *Fox et al.* do not teach cleaning of a machine element. Accordingly, Applicant asserts that one of ordinary skill in the art at the time of Applicant's invention would never have been motivated to combine these references in the manner suggested by the Patent Office in formulating the rejections under 35 U.S.C. §103(a).

It is submitted that the question under §103 is whether the totality of the art would collectively suggest the claimed invention to one of ordinary skill in this art. In re Simon, 461 F.2d 1387, 174 USPQ 114 (CCPA 1972). That elements, even

distinguishing elements, are disclosed in the art is alone insufficient. It is common to find elements somewhere in the art. Moreover, most if not all elements perform their ordained and expected functions. The test is whether the invention as a whole, in light of the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made. Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983).

It is insufficient that the art disclosed components of Applicant's invention. A teaching, suggestion, or incentive must exist to make the modification made by Applicant. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1988).

In view of the foregoing remarks and amendments, Applicant respectfully submit the rejections of Claims 1-8 and 10-16 under 35 U.S.C. §103(a) have been overcome and should be withdrawn. Notice to that effect is requested.

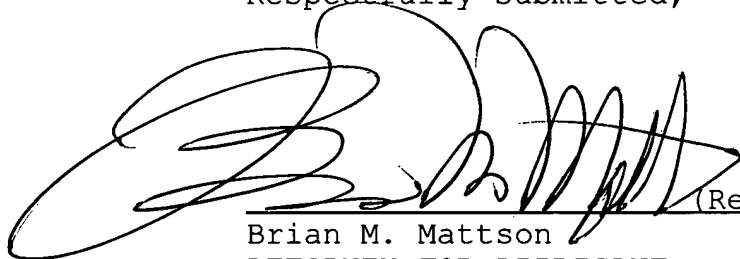
Claims 2-10 depend from Claim 1; Claims 12-16 depend from Claim 11; and Claims 18-22 depend from Claim 17. These claims are further believed allowable over the references of record since each sets forth additional structural elements and novel steps of Applicant's apparatus, system and method for position monitoring and/or cleaning of a machine element, respectively.

In view of the foregoing remarks and amendments, Applicant

respectfully submits that all of the claims in the application are in allowable form and that the application is now in condition for allowance. Further, Applicant submits that neither further search nor consideration would be necessitated by entry of this Amendment; therefore, entry of this Amendment is proper and should be effected.

If, however, any outstanding issues remain, Applicant urges the Patent Office to telephone Applicant's attorney so that the same may be resolved and the application expedited to issue. Applicant requests the Patent Office to indicate all claims as allowable and to pass the application to issue.

Respectfully submitted,

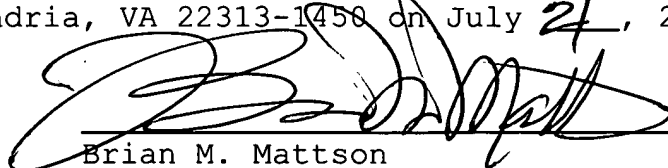


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CERTIFICATE OF MAILING

I hereby certify that this **Amendment After Final** is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 21, 2004.



Brian M. Mattson